

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte ROBERT W. CARR and  
ANNA LEE Y. TONKOVICH

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Appeal No. 1997-1593  
Application No. 08/469,685

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ON BRIEF

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Before KIMLIN, JOHN D. SMITH, and GARRIS, Administrative  
Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1 through 19. The only other claims remaining in

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the application, which are claims 21 through 23, stand withdrawn from further consideration by the examiner.

The subject matter on appeal relates to a method and apparatus for reacting a feed gas to produce a product and separating the product from unreacted feed gas. Claims 1 and 13 are adequately representative of this appealed subject matter, and a copy of these claims taken from the appellants' brief is appended to this decision.

The following reference is relied upon by the examiner in the rejections before us:

Tonkovich, "The Simulated Countercurrent Chromatographic Reactor and Separator, A Thesis Submitted to the Faculty of the Graduate School of the University of Minnesota," pp. 1-210 (1992).

All of the claims on appeal stand rejected under 35 U.S.C.

§ 102(b) as being anticipated by the Tonkovich thesis.

These appealed claims also stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending related application Serial No. 08/469,801.

#### OPINION

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The issues before us on this appeal correspond to those of related Appeal No. 97-1746 for the previously mentioned copending application Serial No. 08/469,801. For a complete exposition of these issues and our disposition of them, we refer to our decision in the related appeal. A copy of this last mentioned decision is attached hereto for the reader's convenience.

The examiner's obviousness-type double patenting rejection is hereby summarily sustained since it has not been contested by the appellants on this appeal.

However, the section 102(b) rejection cannot be sustained since the document applied in this rejection does not constitute prior art. More specifically, as fully explained in our attached decision, at the relevant point in time (i.e., the "critical date"), the Tonkovich thesis was not accessible to the extent required for a "printed publication" under 35 U.S.C. § 102(b).

For the reasons set forth above and in our decision on the related appeal, the examiner's decision rejecting claims 1 through 19 is affirmed.

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No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

AFFIRMED

	Edward C. Kimlin	)	
	Administrative Patent Judge	)	
		)	
		)	
		)	
	John D. Smith	)	BOARD OF
PATENT		)	
	Administrative Patent Judge	)	APPEALS AND
		)	INTERFERENCES
		)	
		)	
	Bradley R. Garris	)	
	Administrative Patent Judge	)	

BRG:tdl

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APPENDIX

1. A method for reacting a feed gas to produce a product and separating the product from unreacted feed gas, the method comprising the steps of:

a) providing a plurality of compartments connected in series, wherein each compartment comprises a reaction zone which includes a reaction zone inlet port connected to feed gas line and a carrier gas line, and a separation zone which includes an upstream section connected to a downstream section with a separation zone recovery port for recovering product passing through the connection between the upstream and the downstream sections; and said downstream section including at least one separation zone outlet port; and wherein the compartments are connected so that each of the separation zone outlet ports is connected to the reaction zone inlet port of the next compartment downstream in the series and the last compartment in the series is connected to the first compartment of the series to provide a closed loop;

b) supplying pressurized feed gas to the reaction zone inlet port of a first one of the compartments in the series and pressurized carrier gas to the reaction zone inlet port of the preceding compartment upstream in the series so that the feed gas reacts in the reaction zone of said first one of the compartments to produce a mixture which includes a product and unreacted feed gas, and so that the mixture is passed to the upstream section of the separation zone of said first one of the compartments wherein product is separated from unreacted feed gas so as to effect a substantially simultaneous reaction and separation and so that the unreacted feed gas exits the separation zone outlet port;

c) transferring carrier gas and unreacted feed gas exiting the separation zone outlet port of said first one of the compartments to the reaction zone inlet port of the next compartment in the series;

d) at a time after the unreacted feed transfer of step (c), recovering the product from the separation zone recovery port of said first one of the compartments;

e) after recovering the product as recited in step (d), purging said first one of the compartments with carrier gas;

f) just prior to the unreacted feed transfer of step (c), switching the feed gas supply from the reaction zone inlet port of said first one of the compartments to the reaction zone inlet port of said next compartment in the series and switching the carrier gas supply from the reaction zone inlet port of said preceding compartment to the reaction zone inlet port of said first compartment in the series, so that the feed gas and the unreacted feed gas react in the reaction zone of said next compartment to produce the mixture which includes product and unreacted feed gas and so that the mixture is passed to the upstream section of the separation zone of said next compartment wherein product is separated from the unreacted feed gas so as to effect a substantially simultaneous reaction and separation, and so that the unreacted feed gas exits the separation zone outlet port;

g) repeating the cycle of steps (c) through (f) in a continuous manner so that the compartment in which the reaction and separation occurs advances sequentially around the series of compartments in the closed loop.

13. An apparatus for reacting a feed gas to produce a reaction mixture, which includes a product and unreacted feed gas, and for separating the product from the reaction mixture, the apparatus comprising:

a plurality of compartments connected in series;

each compartment comprising a reaction zone which includes a reaction zone inlet port connected to a feed gas line, and a separation zone which includes at least one separation zone outlet port, which zones allow substantially simultaneous reaction of feed gas and separation of product from the reaction mixture;

each separation zone outlet port connected to the reaction zone inlet port of the next compartment downstream in the series and the last compartment in the series connected to the first compartment of the series to provide a closed loop;

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the connection between the compartments permitting recovery of product exiting the separation zone outlet port; and

means for controlling the introduction of feed gas, the movement of unreacted feed gas, and the recovery of product so that the compartment in which the reaction and separation occurs advances sequentially and continuously around the series of compartments in the closed loop.